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U.S. Patent Application Serial No. 10/510,407
Reply to Office Action dated January 30, 2008

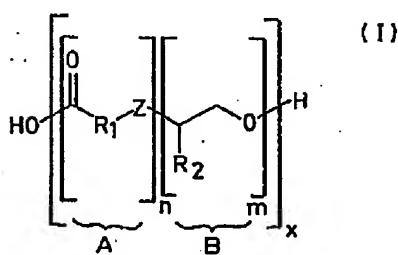
MAR 31 2008

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (ORIGINAL) A functionalizable polymer of the formula I :



wherein:

Z is -O- or -NH-;

R₁ represents a non-functional backbone of a hydroxy acid or amino acid derived from a cyclic ester or diester or cyclic amide or diamide monomer (A);

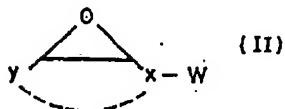
R₂ represents a non-functional chain derived from an epoxide monomer (B), said chain ending with a graftable hydroxy or carboxylic group;

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n is the number of units derived from the monomers (A);
m is the number of units derived from the monomers (B); and
x is equal to n+m;
the ratio m/x ranging from 0.005 to 0.30.

2. (ORIGINAL) The functionalizable polymer of formula I as claimed in claim 1, wherein R1, R2, n, m and x are selected so that the average molecular weight of the polymer ranges from 1,000 to 50,000.
3. (PREVIOUSLY PRESENTED) The functionalizable polymer of formula I as claimed in claim 1, wherein Z is -O- and the monomer A is selected from the group consisting of lactones, dioxanones and dioxanediones.
4. (ORIGINAL) The functionalizable polymer of formula I as claimed in claim 3, wherein the monomer A is selected from the group consisting of caprolactone, glycolide, dilactide and glycolic lactide.
5. (PREVIOUSLY PRESENTED) The functionalizable polymer of formula I as claimed in claim 1, wherein Z is -NH- and the monomer A is selected from the group consisting of lactams and dilactams.
6. (PREVIOUSLY PRESENTED) The functionalizable polymer of formula I as claimed in claim 1, wherein the monomer B is selected from the group consisting of the epoxides of formula II:

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wherein:

X is a non-functional chain optionally containing one or more heteroatoms but no ester or amide link;

W is -CH₂CH₂OH or -CH₂COOH; and

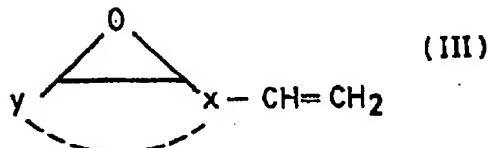
Y is H, alkyl or phenyl;

X and Y being optionally linked to each other as shown in dotted lines.

7. (PREVIOUSLY PRESENTED) The functionalizable polymer of formula I as claimed in claim 1, wherein the monomer B consists of alkyl glycidyl ether.

8. (WITHDRAWN) A process for preparing a functionalizable polymer of formula I as defined in claim 1, comprising the steps of:

a) reacting at least one monomer (A) with at least one epoxide of formula III



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wherein X is a non-functional chain optionally containing one or more heteroatoms but no ester or amide link and wherein Y is H, alkyl or phenyl, in the presence of a catalyst;

- b) subjecting the polymer obtained in step a) to an oxidation to convert the -CH=CH₂ groups into corresponding -CH₂CH₂OH groups; and
- c) optionally subjecting the polymer obtained in step b) to another oxidation with a Jones mixture to convert the -CH₂CH₂OH groups into corresponding -CH₂COOH groups.

9. (WITHDRAWN) The process of claim 8, wherein:

step a) is carried out with a tin catalyst at a temperature higher than 100°C under inert atmosphere.

10. (WITHDRAWN) The process of claim 8, wherein:

step b) is carried out under mild oxidation conditions.

11. (WITHDRAWN) The process of claim 10, wherein:

step b) is carried out by hydroboration at low temperature.

12. (WITHDRAWN) The process of claim 8, wherein the polymer obtained after each of the steps a) to c) are recovered and purified prior to being subjected to the next step.

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13. (WITHDRAWN) A functionalized polymer consisting of a functionalizable polymer of the formula I as claimed in claim 1, to the graftable hydroxy or carboxylic groups of which has been grafted a compound selected from the group consisting of:

ligands specific to cellular receptors;

lipids;

peptides;

polyethers;

polyacrylates;

natural polymers;

polyosides;

antigens or antibodies;

salen; and

cyclodextrins.

14. (WITHDRAWN) The functionalized polymer of claim 13, wherein the compound grafted to the polymer of formula II is a biomedically or pharmaceutically active substance.

15. (WITHDRAWN) The functionalized polymer of claim 14, wherein the compounds grafted to the polymer of formula I is a ligand specific to Selectine E.

16. (WITHDRAWN) The functionalized polymer of claim 13, which is in the form of nanospheres to facilitate delivery of the active substance.

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17. (WITHDRAWN) A functionalized polymer consisting of a functionalizable polymer of the formula I prepared by the process as claimed in claim 8, to the graftable hydroxy or carboxylic groups of which has been grafted a compound selected from the group consisting of:
- ligands specific to cellular receptors;
 - lipids;
 - peptides;
 - polyethers;
 - polyacrylates;
 - natural polymers;
 - polyosides;
 - antigens or antibodies;
 - salen; and
 - cyclodextrins.